WE CLAIM:

1. A blade clamping device for clamping a blade comprising:

a cylindrical rotatable sleeve having a proximal end in which is formed an aperture for a blade;

a rotatable member mounted substantially coaxially within the cylindrical rotatable sleeve and having a proximal end;

a blade carrier disposed within the cylindrical rotatable sleeve and having a proximal end in which is formed a blade receiving slot for the blade and a distal end;

an output shaft coupled to the distal end of the blade carrier;

a torsion spring for biassing the clamping device from a non-clamping configuration in which the blade is insertable into the blade carrier to a clamping configuration in which the blade is able to be clamped in the blade carrier;

a guide groove radially and axially extending from an exterior surface of the blade carrier (4) and communicating with the blade receiving slot;

a locking member pivotally mounted in the guide groove on a pin; and

a spiral surface disposed at the proximal end of the rotatable member,

wherein the cylindrical rotatable sleeve is manipulable rotationally to the non-clamping configuration whereat the aperture is aligned with the blade receiving slot for inserting the blade into the blade carrier and wherefrom the cylindrical rotatable sleeve is biased back to the clamping configuration by the torsion spring whereat the aperture is non-aligned with the blade receiving slot and the spiral surface positively engages a curved surface of the locking member giving the locking member a tendency to rotate about the pin thereby causing the locking member to positively engage the blade in the blade carrier.

2. The device according to claim 1 wherein when the locking member positively engages the blade, the cylindrical rotatable sleeve is biased back from the non-clamping configuration to the clamping configuration by releasing the cylindrical rotatable sleeve.

3. The device according to claim 1 wherein the cylindrical rotatable sleeve is manipulable rotationally from the clamping configuration to the non-clamping configuration whereat the aperture is aligned with the blade receiving slot for releasing the blade.

4. The device according to claim 1, wherein the blade carrier rotatably contacts a front end surface of the rotatable member and a rear rod of the blade carrier passes through a central aperture of the rotatable member.

5. The device according to claim 1, wherein the torsion spring has a first end to which is connected the rotatable member and a second end to which is connected the output shaft.

6. The device according to claim 1, wherein a protrusive rib extends axially along the exterior surface of the rotatable member and a second retaining groove extends axially along the interior surface of the cylindrical rotatable sleeve, wherein the protrusive rib fits into the groove to securely retain the rotatable member and the cylindrical rotatable sleeve together.

7. The device according to claim 1, wherein two protrusive stoppers are provided on the ends of the spiral surface and an end portion of the blade carrier facing the spiral surface is provided with a limiting pin which is able to move between the protrusive stoppers.

8. The device according to claim 1 wherein the cylindrical rotatable sleeve and rotatable member are mounted substantially coaxially in a manner so as to prevent relative rotation.

9. The device according to claim 1, wherein the rotatable member has a cylindrical main body integrally formed at a proximal end with a cylindrical sleeve.

10. The device according to claim 9, wherein the blade carrier has a proximal head on a distally extending rod and is disposed partly within the cylindrical rotatable sleeve such that the distally extending rod passes through and out of the distal end of the rotatable member and the proximal head is slidably seated on the proximal end of the cylindrical sleeve.

11. The device according to claim 9, wherein the surface of the proximal end of the cylindrical main body spirals axially along the interior of the cylindrical sleeve to define the spiral surface terminating at the proximal end of the cylindrical sleeve.

12. The device according to claim 9, wherein a first and a second protrusive stopper project radially inwardly from the proximal end of the cylindrical sleeve.

13. The device according to claim 12 further comprising a limiting pin on the proximal head of the blade carrier, wherein said limiting pin is movable between the first protrusive stopper and the second protrusive stopper so as to limit the rotational range of the rotatable member.

14. The device according to claim 1 further comprising a restoring member accommodated within the output shaft and capable of cooperating with the distal end of the blade, wherein the restoring member in the clamping configuration is biased towards ejecting the blade and in the non-clamping configuration is at rest.

15. The device of claim 14 wherein the restoring member cooperates with a force transmitting element for ejecting the blade on manipulation rotationally from the clamping configuration to the non-clamping configuration.

16. The device according to claim 1 wherein the locking member is pivotal between a first position in the non-clamping configuration in which it is remote from the spiral surface and a second position in the clamping configuration in which it positively engages the spiral surface.

17. The device according to claim 16 wherein the locking member is capable of being pivoted between the first position and the second position by the insertion of the blade.

18. The device according to claim 1 wherein the locking member is an irregular shape.

19. The device according to claim 18 wherein the locking member is substantially teardrop-shaped.

20. A saw comprising a blade clamping device as claimed in claim 1 and a blade.

21. A quick-change saw blade clamping device comprising an output shaft, a rotatable sleeve, and a torsion spring, said output shaft is coupled to a blade carrier which is disposed within said rotatable sleeve, a blade receiving slot is formed on a front end of said blade carrier, a aperture is formed on a front end portion of said rotatable sleeve, characterized in that said rotatable sleeve is integrally mounted to and disposed within said rotatable sleeve, a guide groove radially and axially extending from an outer surface of said blade carrier and communicating with said a blade receiving slot, a locking member is pivotally connecting to said blade carrier and disposed in said guide groove, a spiral surface disposed at a front head end of said rotatable member, under a state in which a blade clamped in a locking position, said spiral surface presses against the rear side surface of said locking member.